WALKING FIELD TRIPS: MAPPING OUTDOOR INSTRUCTION OPPORTUNITIES

by

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A capstone project submitted in partial fulfillment of the requirements for the degree of Master of Arts in Education: Natural Science and Environmental Education.

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Saint Paul, Minnesota

August 2018

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Walking Field Trip Map

Project Overview

The research question guiding this capstone project is the following: *How can upper elementary educators in a rural school district utilize walking field trips and outdoor instruction to support achievement of state academic content areas and to integrate principles of environmental education?* As a key element of the capstone project, an online, open-source Walking Field Trip Map was created for elementary school educators in a specific rural school district. Places within a mile of each school that would be suitable for outdoor instruction and walking field trips were charted with added descriptions of each. In addition to the local map, a Walking Field Trip and Outdoor Instruction Guide for how to replicate and utilize this strategy in other school districts was completed.

Walking Field Trips have been defined in the project as treks to natural and community spaces planned during class time for the purpose of enhancing students’ learning experience and helping to achieve academic goals. These excursions provide opportunities to integrate environmental education into curriculum and can lead to higher proficiency and test scores in multiple content areas (Children & Nature Network, 2016; Children & Nature Network, 2015; Lieberman & Hoody, 1998; Stanford University & North American Association for Environmental Education, 2018). The Walking Field Trip and Outdoor Instruction Guide further details the potential benefits, how to select routes, and how to plan the logistics for this type of instruction.
Map Data Format

Though the map data is easiest to navigate online, Appendix A captures all data that was inserted as a complete record of its content. The custom visual representation was completed using Google My Maps. The district of focus includes six elementary schools, which were all added as a separate layer within the same project page. The intended audience for this resource is elementary school educators in the specific rural district that was mapped. In Appendix A, screenshots of the project are displayed in order to capture the routes and destinations as they appear over a scalable satellite image of the local area. In the selected screenshots, all references to specific places have been blurred in order to retain anonymity. This includes names identifying streets, trails, highways, businesses, and schools. Each elementary school in the district has been numbered from one to six and route names have been replaced with single letters following the school number they are intended to serve.

When a user clicks on one of the inputted routes or photos online, the side panel on the screen changes from a list of available data (as shown in the images in Appendix A) to a photo and description of the selected route. Route descriptions and inputted photos have been copied in tables in Appendix A and organized by school. Access, amenities, and features of each location were detailed. Reference to specific names and places in the text have been replaced with “XXXX” in order to retain anonymity. Background color has been added to the tables in Appendix A to match the color of the route as it appears on the map.

Resource Guide Format

Appendix B is a copy of the Walking Field Trip and Outdoor Instruction Guide. This resource is intended for a wider audience of elementary school educators, administrators, and
district staff in rural areas that would like to replicate the walking field trip mapping process and utilize this type of instruction in their classes. The guide explains the benefits of teaching outside, how to create maps to nearby natural areas, logistical information for conducting walking field trips, and additional resources to help integrate environmental education into curriculum. This “how to” guide aims to facilitate the ability of upper elementary school educators across the nation to utilize nearby outdoor locations for lessons on a regular basis. It is organized around the questions of what are walking field trips, why use natural settings for instruction, where can walking field trips can lead, and how to plan and conduct walking field trips.

**Summary**

Together, these resources provide practical application to research relating to the question, *How can upper elementary educators in a rural school district utilize walking field trips and outdoor instruction to support achievement of state academic content areas and to integrate principles of environmental education?* The Walking Field Trip Map and Walking Field Trip and Outdoor Instruction Guide provide tangible resources for educators both locally and nationally so that nearby natural areas can be utilized to enhance students’ learning experience and achieve academic goals.
References


Town of New Castle. (n.d.). Parks, trails, open space. Retrieved from
https://newcastlecolorado.org/things-to-do/outdoor-activities


https://cchp.ucsf.edu/content/field-trip-safety-tips
Appendix A

Walking Field Trip Map

The following six schools were added as layers in the open-source Google My Map displaying Walking Field Trip opportunities. For each school, an image displaying all routes, photos, and destinations is presented as it appears on the map followed by the inputted details of each site.

School 1

School 1 is identified with a pinpoint marker and lines have been drawn to show three possible routes, one of which leads to a park area that has been highlighted by a geometric shape.
Access:
Reservations of the covered picnic table area have priority. This park is managed by City of XXXX Parks and Recreation.

A sidewalk path leads from the school to the park. The grass-covered open space is relatively flat.

Amenities:
Portable restrooms are seasonal. There are trash receptacles at the picnic table area.

Features:
There is a covered picnic table area and large open field. There is also a sand volleyball court and playground on the property.

Additional Photos Added as Points Along Route 1A:
### Route 1B

**ACCESS:**
Paved sidewalks lead through a residential area to the upper trailhead. The trail portion of the route is well-maintained dirt and gravel and is on a downward slope. Maintenance does not continue through winter.

**AMENITIES:**
The lower trailhead has a picnic table and trash receptacles. There are two benches along the trail.

**FEATURES:**
The beginning of the XXXX Trail passes by agricultural land before entering a wooded area. The path features a stream, small pond, meadows, and variety of tree and plant species. Wildlife may be viewed along the route.

**Additional Photos Added as Points Along Route 1A:**
ACCESS:
This site is managed by XXXX. Arrange a visit and find more information at [webpage link]. Sidewalk paths lead from the school through a residential area to the XXXX Park.

AMENITIES:
The site currently has indoor classroom space, community gardens, and an outdoor stage and gathering location. Restrooms are available. There are plans to further develop the location to include new features such as sculpture gardens, ponds, and picnic table areas.
FEATURES:
The XXXX plans classes and events that focus on arts, music, and humanities. The five acres of land is used as an instructional setting and to display exhibits, provide community garden space, and host community events.

School 2

School 2 is identified with a pinpoint marker and lines have been drawn to show three possible routes from the school. Route 2B is partially obscured in the image by Route 2C, but is highlighted and brought to the top of the layers when selected on the webpage.
ACCESS:
Caution! This trail has a constant steep drop off on one side without fencing. The road is wide, but there are points of erosion on the outside edge. Assess this path and consider the class' ability to navigate conditions before attempting with students. In addition to student safety, make sure that no objects, natural or otherwise, fall or are propelled over the edge. The path is not actively maintained throughout winter.

The very beginning of the route is a sidewalk path that leads from the school and through a residential area to the upper trailhead. The path then loses elevation heading behind the XXXX Water Tanks and towards XXXX Creek. Private property surrounds the trail.

Contact XXXX Parks and Recreation for more information.

AMENITIES:
None

FEATURES:
The town of XXXX and the [landmark] XXXX are visible from the path. This natural area has many different native plants and opportunities to view wildlife. The cut out interior of the path shows rock layering.

Additional Photos Added as Points Along Route 2A:
Route 2B

ACCESS:
This site is managed by XXXX. Arrange a visit and find more information at [weblink]. Sidewalk paths lead from the school to the XXXX.

AMENITIES:
The site currently has indoor classroom space, community gardens, and an outdoor stage and gathering location. Restrooms are available. There are plans to further develop the location to include new features such as sculpture gardens, ponds, and picnic table areas.

FEATURES:
The XXXX plans classes and events that focus on arts, music, and humanities. The five acres of land is used as an instructional setting and to display exhibits, provide community garden space, and host community events.

Additional Photos Added as Points Along Route 2B:
Route 2C

ACCESS:
Paved sidewalks lead to the upper trailhead. The trail portion of the route is well-maintained dirt and gravel and is on a downward slope. Maintenance does not continue through winter.

AMENITIES:
The lower trailhead has a picnic table and trash receptacles. There are two benches along the trail.
FEATURES:
The beginning of the XXXX Trail passes by agricultural land before entering a wooded area. The path features a stream, small pond, meadows, and variety of tree and plant species. Wildlife may be viewed along the route.

Additional Photos Added as Points Along Route 2C:
School 3

School 3 is identified with a pinpoint marker and lines have been drawn to show three possible routes from the school, one of which leads to a park area marked by a geometric shape.
Route 3A

ACCESS:
This is a sidewalk path that follows alongside XXXX Creek. The route is relatively flat and is nearby a residential area.

The trail is being expanded and will eventually extend to both XXXX and XXXX. Contact City of XXXX Parks and Recreation to learn more.

AMENITIES:
None

FEATURES:
There are several access points to XXXX Creek along the way, and different species can be viewed in the riparian zone than in the surrounding area. There are opportunities to view native flora and fauna.

Additional Photos Added as Points Along Route 3A:
**Route 3B**

<table>
<thead>
<tr>
<th>Access</th>
<th>Access: This field is managed by XXXX Parks and Recreation. Reservations have priority to use this space. A sidewalk path leads from the school to the open field, which is grass-covered and relatively flat.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amenities</td>
<td>Amenities: There is a grouping of picnic tables and trash receptacles. Restrooms are located near the center of the park complex.</td>
</tr>
<tr>
<td>Features</td>
<td>Features: This site has a picnic table gathering point with trees, an open field for activities, and is adjacent to the creek.</td>
</tr>
</tbody>
</table>

**Additional Photos Added as Points Along Route 3B:**
ACCESS:
Caution! This trail has a constant steep drop off on one side without fencing. The road is wide, but there are points of erosion on the outside edge. Assess this path and consider the class' ability to navigate conditions before attempting with students. In addition to student safety, make sure that no objects, natural or otherwise, fall or are propelled over the edge. The path is not actively maintained throughout winter.

The very beginning of the route is a sidewalk path, until turning to a dirt road at the end of XXXX Drive. The path then gains elevation heading behind the XXXX Water Tanks and to the top of XXXX. Private property surrounds the trail.

Contact XXXX Parks and Recreation for more information.

AMENITIES:
None

FEATURES:
XXXX and the XXXX [landmark] are visible from the path. This natural area has many different native plants and opportunities to view wildlife. The cut out interior of the path shows rock layering.

Additional Photos Added as Points Along Route 3C:
School 4

School 4 is identified with a pinpoint marker and lines have been drawn to show three possible routes from the school, one of which leads to a park area marked by a geometric shape.

Route 4A

*Photo edited to remove reference to specific location
ACCESS:
An appointment must be scheduled and coordinated with the XXXX. More information is available at [weblink]. A sidewalk path leads from the school to the venue.

AMENITIES:
Several structures with historical artifacts are arranged on the property. The site has indoor plumbing and places to gather both inside and outside.

FEATURES:
Classes, demonstrations, and other events take place throughout the year. Buildings include historical displays and are themed, such as a blacksmith's shop, schoolhouse, and cowboy camp.

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**Route 4B**

ACCESS:
The entire path is paved. It gains elevation heading alongside XXXX Road and ends at XXXX Park, which is managed by Town of XXXX.

AMENITIES:
XXXX Park has a picnic table, benches, and trash receptacles. There are no public restrooms available.

FEATURES:
There are native plants along the route and potential opportunities to see birds and other wildlife. Near XXXX Park, there is an “Advanced Timber Challenge Course” along the path with outdoor exercise equipment stations and marked instructions for physical activity. Eagle’s
View Park has a playground and open paved and grassy areas for activities.

Additional Photos Added as Points Along Route 4B
ACCESS:
This location is managed by the Town of XXXX. A sidewalk path leads to the nearby park, which is grassy with some sidewalk paths. The route and park area are relatively flat.

AMENITIES:
There are portable restrooms, a covered picnic area with multiple tables, a covered raised platform, and trash receptacles.
FEATURES:
This park has ample open space for activities and a covered picnic table area large enough for a full class of students to be seated. The covered raised platform has a wide staircase and railings around the perimeter. There are many large trees in the area.

Additional Photos Added as Points Along Route 4C
School 5

School 5 is identified with a pinpoint marker and lines have been drawn to show two possible routes from the school, one of which passes through a park area marked by a geometric shape.

Route 5A
ACCESS:
A wide, flat bridge leads directly from the elementary school over the creek to XXXX Park, which is an open, grassy area. The creekside trail leads from the corner of the park and is an unpaved and narrow dirt path. The trail leads behind homes in a residential neighborhood. The park and trail are managed by the Town of XXXX.

AMENITIES:
The park has benches and trash receptacles. There are no public bathrooms. A sign in the park displays the route and additional trails in the area.

FEATURES:
The trail has access points to Elk Creek. It is wooded and has many native plants, with potential to view birds and other wildlife. The park provides an open space for activities.

Additional Photos Added as Points Along Route 5A
Route 5B

ACCESS:
A sidewalk leads up the hill on a moderate incline from the school through a residential area. There are multiple street crossings on the way. The path through the park is evenly maintained dirt and gravel. The park is managed by the Town of XXXX.

AMENITIES:
There are restrooms located at XXXX Park (the playground area adjacent to XXXX Park) and near the pond in XXXX Park. There are picnic tables and trash receptacles. Signs at the
entrances of the park display additional routes in the area and local natural and historical information.

FEATURES:
The park features a pond and cattail-covered wetland areas. There are grassy, open soccer fields and maintained paths through the park. Many birds frequent this area.

### Additional Photos Added as Points Along Route 5B

![Additional Photos](image1.jpg)

![Additional Photos](image2.jpg)
School 6

School 6 is identified with a pinpoint marker and lines have been drawn to show four possible routes from the school and one optional connecting path between routes. A park area has been marked by a geometric shape.
Route 6A

ACCESS:
A sidewalk leads a short distance from the school to the park entrance. The path through the park is evenly maintained dirt and gravel on a gentle slope. The park is managed by the Town of XXXX.

AMENITIES:
There are restrooms located near the pond and also at XXXX Park (the playground area adjacent to XXXX Park at the other end of the path). There are picnic tables and trash receptacles. Signs at the entrances of the park display additional routes in the area and local natural and historical information.

FEATURES:
The park features a pond and cattail-covered wetland areas. There are grassy, open soccer fields and maintained paths through the park. Many birds frequent this area.

Additional Photos Added as Points Along Route 6A:
ACCESS:
This entire route consists of paved paths and sidewalks and can be completed as a loop beginning and ending at the school. The segments along XXXX Boulevard and XXXX Drive are residential neighborhood sidewalks. The XXXX Trail portion is a paved biking and walking path. There is one street crossing and one pedestrian underpass, both adjacent to school grounds.

AMENITIES:
Restrooms and are available at the XXXX Skate Park, approximately halfway through the loop.

FEATURES:
This part of the XXXX Trail passes by trees and a wetland area.

**Additional Photos Added as Points Along Route 6B:**
### Route 6C

**ACCESS:**
This route does not begin or end at the school, but rather provides an optional connection between the mapped XXXX Park and XXXX Trail routes. This connection is a sidewalk path leading through a residential area.

**AMENITIES:**
None
FEATURES:
There are some trees along the path. This allows for a longer loop leading to and from the elementary school, combining existing routes.

ACCESS:
A sidewalk path leads from the school and up a hill through a residential neighborhood. XXXX Trail passes through XXXX at the top of XXXX Circle. Do not plan to use this trail if it is muddy, and watch for other users such as bicyclists. XXXX Trail is a dirt path. A small segment has been mapped, but the network of available trails extends beyond this point further into BLM land. Do not cut switchbacks in the trail and avoid stepping on cacti.

AMENITIES:
The path is well-marked; signs indicate trail names. Follow directions towards XXXX Trail.

FEATURES:
This trail features native plants and opportunities to view wildlife. It offers views of the school and community while traveling through public land.

Additional Photos Added as Points Along Route 6D:
Route 6E

ACCESS:
XXXX Park is adjacent to the school and can be accessed using a paved sidewalk. The park has a paved walking path and flat, grassy open areas. It is managed by the Town of XXXX.

AMENITIES:
Restrooms, picnic tables, trash receptacles, and drinking fountains are available. A sign near the restrooms shows additional trails in the area.
FEATURES:
The path through the park is a loop. Large grassy areas provide room for activities. There is also a soccer and baseball field on site.

Additional Photos Added as Points Along Route 6E:
Appendix B

Walking Field Trip and Outdoor Instruction Guide

Walking Field Trip and Outdoor Instruction Guide

Where to go, how to plan, and why taking students outside during class time is academically important

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Walking Field Trip and Outdoor Instruction Guide

This guide has been prepared for upper elementary school educators rural school districts. Though the recommendations are focused on this specific age group and geography, the project is replicable for other educational settings as well. The guide focuses on the benefits of outdoor instruction and how to use nearby natural spaces to support academic achievement.

What are walking field trips?

Walking field trips are treks to natural and community spaces planned during class time for the purpose of enhancing students’ learning experience and helping to achieve academic goals. Hands-on opportunities to apply knowledge are available everyday, right in the neighborhood of the school! Routes that have been mapped adjacent to schools provide opportunities for varied outdoor instruction. Students can learn about the local landscape, develop a sense of place, and become more environmentally literate while still working towards state academic standards.

Preexisting classroom curriculum can be delivered in natural settings, but outdoor instruction and outdoor field trips are especially meaningful when used to integrate subject matter across disciplines and incorporate environmental education practices (Lieberman & Hoody, 1998; North American Association for Environmental Education, 2010).

Environmental education teaches students to become aware of environmental processes and challenges and to use this foundational knowledge to make informed decisions, commit to responsible actions, and create innovative solutions (National Environmental Education Foundation, 2015; North American Association for Environmental Education, 2010).
Why use natural settings for instruction?

Looking to promote higher test scores? Increase class attention and engagement? A way to boost creativity and problem solving skills? The path to these benefits is out the door and just around the corner... all without the hassle of organizing and paying for busses! Read on to discover the academic, behavioral, and health benefits of walking field trips.

Academic Success
Multiple studies show that students significantly improve their academic performance when they are given opportunities to learn outside. This includes higher test scores in reading, writing, math, science, and social studies. Students are also more motivated to learn and are engaged in subject matter. Creativity, analytical thinking, problem solving, and leadership skills are promoted (Children & Nature Network, 2016; Children & Nature Network, 2015; Lieberman & Hoody, 1998; Stanford University & North American Association for Environmental Education, 2018).

Environmental Literacy & Connection to Place
An added benefit to outdoor instruction is expanded awareness of environmental and community topics. Time spent outside the classroom can increase environmental literacy among students and prompt a better understanding of natural and social systems (Stanford University & North American Association for Environmental Education, 2018). Learning from the local neighborhood promotes strong connection to place, civic engagement, and motivation to responsibly manage resources (Gallay et al., 2016).

Behavioral & Psychological Benefits
Students demonstrate better classroom behavior outdoors. Studies show that children are more cooperative, focused, attentive, and have more self-control when learning outside. This results in reduced interruptions to the lesson (Children & Nature Network, 2016; Rivkin, 2014; Stanford University & North American Association for Environmental Education, 2018).

Health & Physical Advantages
Walking field trips promote healthy habits and physically active lifestyles. The Centers for Disease Control and Prevention and Surgeon General have advised schools to promote policies that support walking to and from school, as well as walking during class time (2017).
**Where can walking field trip routes lead?**

Selected locations should be a walkable distance nearby the school that can be utilized as often as possible throughout the school year. Public lands, parks, trails, walking paths, river/creek access points, and other outdoor community spaces that can be safely accessed are helpful starting points. Managing land agencies should be called in advance to discuss access, make reservations (if necessary), and identify any additional site-specific considerations (San Diego Children and Nature, 2011). Mapping these routes, either by hand or electronically, is a helpful way to share this information (Eat Smart, Move More North Carolina, 2007). An example of completed school-specific maps is provided in this section, along with the process utilized for their creation.

**Case Study of Six Elementary Schools in a Rural District**

Routes were planned for six elementary schools in a rural school district. These have been mapped in an open source webpage so that they are easily accessible for educators. Google My Maps was used to chart and display the routes (https://www.google.com/maps/about/mymaps/). Photo examples from the project are copied below with all reference to specific names and places removed.

**Selecting Locations:** Local government parks and recreation webpages and satellite images of the area were reviewed in order to identify potential routes and destinations. Only sites within one mile of the school were considered. However, in some cases the start of the trailhead was within one mile and a complete loop or remainder of the route was also charted to leave the option for a longer excursion.

After viewing prospective locations remotely, it was essential to collect on-the-ground information by visiting the sites in person. New routes were discovered and many more were removed from the list after walking through the district. Feasibility of traveling the route with students was considered, including site hazards, access, features, amenities, and distance. Topography was often a challenge; some routes were excluded because the grade was too steep.
and perilous for the age group, even though the distance fit the 1-mile parameter. Lack of safe road crossings or sidewalks was also a barrier in some cases, particularly when a major road or highway divided a potential route without the ability to easily cross.

**When planning a new route, consider how to best promote safety and educational opportunities. Make sure the destination is suitable for students of your selected age group (San Diego Children and Nature, 2011).**

**Mapping Routes:** Routes and destinations were charted on a custom Google Map. Different colors were used to identify distinct routes. This was necessary because several of the selected schools are located within a close geographical area, and many of the paths overlapped.

A new layer in the map was created for each of the six schools. Points of interest, photos, descriptions, and routes were added within each layer of the corresponding school. Available open space in parks was marked with geometric shapes, paths to follow were denoted by lines, and additional photos were added with point markers. Text was added to each route description to detail site access, amenities, and features.

**Photo Examples:**
Three routes were planned from the school pictured in the image to the right. They were chosen based on proximity to the school, safety, and ability for teachers to access. These routes also demonstrate a variety of outdoor experiences. The route marked in yellow leads to a nearby field where classes could gather for an extended time. The orange route is an evenly-paved sidewalk that allows for creek access. The red is a longer and more challenging unpaved hiking route.

Additional photos were added as points on the school map pictured left. One route leads to a nearby park with available open space, another to an outdoor history museum, and the third is a longer walking path and nature trail.
The following example demonstrates how the webpage would display routes and photos related to “School 6” if Google My Maps is used. When users select a route or photo, the sidebar displays a photo and description of the site, rather than the list of available data presented in the image below.

![Walking Field Trip Map](image)

**How to plan and conduct walking field trips**

**Before the Field Trip Day:**

**Check out the Route**
- Become familiar with the route before bringing students along. Consider any specific safety, resource, access, and logistical needs for your class. Estimate the amount of time that it will take to walk (San Diego Children and Nature, 2011).
- Establish use agreements with the land manager ahead of time. Confirm date and time of field trips if necessary.
- Planning routes in rural, mountainous places may present specific challenges, such as steep topography, changing weather, and potential wildlife encounters. Plan how to respond to these possible scenarios. Take local and seasonal considerations into account, such as how ice, rain, and snow will affect trail conditions.

**Follow Administrative Requirements**
- Follow any additional guidance or requirements from your school pertaining to taking students off-site. This may include obtaining administrative approval, additional staffing, and permission slips. Be sure to plan for children with healthcare needs and identify emergency procedures (Walsh, 2016).
Prepare the Class

- Discuss expected behavior with your class, including pedestrian safety, personal conduct, academic focus, and how to react to wildlife.
- Tell students (and their parents) to bring necessary equipment to school, including water bottles, adequate walking shoes, and clothing layers suitable for the weather (San Diego Children and Nature, 2011).
- Identify the learning focus and plan activities for the walk/outdoor instruction time. Natural environments are versatile; they can be used as settings for various instructional techniques, including individual and group work, hands-on activities and reflection time (San Diego Children and Nature, 2011). See the resources at the end of this guide and the “Understanding the Local Environment” excerpt from Excellence in Environmental Education: Guidelines for Learning (K-12) below (North American Association for Environmental Education, 2010) for curriculum ideas.
- Share photos of the map route, anticipated features, educational themes, and activities with students.

**Featured Best Practice:**

“Understanding the Local Environment, Grades K-4”

The following examples were provided in the Excellence in Environmental Education: Guidelines for Learning (K-12) by the North American Association for Environmental Education (2010). This is a short list of topics that would be appropriate for fourth grade students as they think about their local community and greenspace. This is not a comprehensive list, but provides some exemplary ways to integrate environmental education into the curriculum.

“Identify basic types of habitats (e.g., forests, wetlands, or lakes). Create a short list of plants and animals found in each.

Trace the source of their drinking water and where it goes after it is used.

Recognize resident animal species, migrants, and those that pass through on migratory routes.

Collect or produce images of the area at the beginning of European settlement.

Describe aspects of the environment that change on a daily, weekly, monthly, and yearly basis.

Record weather observations such as precipitation, temperature, or cloud cover.

Identify food crops that are grown or processed locally.”

(North American Association for Environmental Education, 2010, p. 12)
During Your Outdoor Time:

Be Safe and Prepared:
- Bring a first aid kit, students’ emergency medications (if applicable), a cell phone and emergency contact numbers, sunscreen, and extra water (Walsh, 2016).
- Complete head counts throughout the trip and ensure all participants stay together.
- Know where the nearest restroom is available.

Educational Strategies:
- Field settings are ideal places for hands-on learning and practicing observation skills.
- Utilize walking time as part of the lesson. Try strategies such as the BEETLES Walk and Talk routine (Reagents of the University of California, 2015) which is featured below.

Featured Resource: BEETLES Walk and Talk Routine

The BEETLES Walk & Talk routine is designed to encourage discussion and keep students engaged on the way to and from destinations. Discussion can be used as a tool to introduce a topic or theme, apply knowledge, and reflect on learning (Reagents of the University of California, 2015). Here’s how it works:

1. Students, teachers, and chaperones arrange into two side-by-side lines so that everyone is standing next to a discussion partner.
2. The class is given a discussion question which will prompt scientific thought, inquiry, observation, reasoning, or critical thinking skills relating to the subject matter. Students make connections to the theme and share ideas with their partner while walking as a class.
3. As a signal to stop talking, the teacher uses a “touch of silence” by lightly tapping the shoulder of the nearest pair of students and having each pair pass this through the line. When students receive this indication they focus their attention on the teacher and quietly wait for the next instruction.
4. With each new question, have the student at the head of one of the lines move to the back and the rest of the line move forward one position so that everyone has a new discussion partner.
5. The teacher can occasionally decide to stop along the trail and have a full group discussion. A few students are called upon to share highlights from their conversations. It is suggested that students begin by sharing what their partner said in order to support listening skills.

Try it with your class! Find sample discussion questions for nature walks and more detailed instructions for how to introduce and implement this technique on the BEETLES website: http://beetlesproject.org/resources/for-field-instructors/walk-and-talk/
Materials

- Consider bringing cameras (to document seasonal and annual change at a location), journals, magnifying lenses, binoculars, nature guides, and any other items needed for planned activities (San Diego Children and Nature, 2011).

After the Expedition:

- Plan a follow up activity with students to review knowledge gained, interesting observations, and enjoyable experiences (San Diego Children and Nature, 2011).
- Use classroom time to strengthen themes and lessons learned in the field (San Diego Children and Nature, 2011).
- Note any route modifications, timing adjustments, equipment, educational discussions, activities, or student management techniques that would be helpful for the next trek.
- Evaluate student learning and academic outcomes.

Resources

Confer with local organizations and review online resources for innovative ways to add environmental education into existing curriculum or to develop new approaches to achieving state academic standards outdoors.

Online Environmental Education Resources and Curriculum Ideas

**BEETLES Project:**
http://beetlesproject.org/

**Children and Nature Network:**
https://www.childrenandnature.org/learn/

**Colorado Alliance for Environmental Education:**
- EE in Schools Toolkit:
  https://www.caee.org/ee-schools-toolkit

**North American Association for Environmental Education:**
- EE Learn: https://naaee.org/eepro/learning/eelrn
- EE Resources: https://naaee.org/eepro/resources
- Linking EE and National Standards:
  https://naaee.org/eepro/resources/linking-ee-and-national-standards

**Project Learning Tree:** https://www.plt.org/
**Project WET:** https://www.projectwet.org/
**Project Wild:** http://www.projectwild.org/
References


